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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/697,271

10/31/2003

Dennis M. News

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03/21/2008

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EXAMINER

HARRIS, GARY D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

03/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/697,271	Applicant(s) NEWNS, DENNIS M.	
	Examiner GARY D. HARRIS	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/28/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 1/11/08 have been fully considered but they are not persuasive. By applicant's own admission, the Ramesh et al. US 6,642,539 utilizes similar materials found in applicant's claims and therefore examiner interprets that the layered structure (as presently claimed) would possess similar properties such as charge migration rate. To further clarify claim 1, Ramesh discloses a metallic underlayer (lower metal oxide electrode layer) and data layer (ferroelectric layer) and an upper metal oxide electrode layer (applicant's charge migration layer) as found in the Ramesh et al. '539 abstract and table 4 (Col. 14 & 15, Line 36-67, 1-15 respectively). Applicant additionally argues that examiner has not shown inherency in *"a storage medium, comprising: a metallic underlayer (such as SrRuO₃ applicant's Paragraph 72) a ferroelectric data layer (such as PZT, SBT, STN, NFM, table II applicant's Paragraph 74-81) over said metallic underlayer; and a layer over said ferroelectric data layer (such as SBT, STN applicant's table III) having a charge migration rate faster than a charge migration rate of said ferroelectric data layer"*. However applicant's discloses the layer containing the migration rate faster than a charge migration rate of the ferroelectric data layer could be an inherent surface feature. This is because the ferroelectric layer and the layer over the ferroelectric layer could be the same material and examiner would interpret this as a two layer structure. Claim 1 & 16 taken in the broadest sense could be interpreted as an oxidized metal. Examiner inadvertently left Claim 17 out of the last rejection and has included it in the rejection of claim 4 & 16.

For convenience the rejection is substantially repeated below:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 & 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh et al. US 6,642,539.

As to Claim 1, 5, 10, 16 Ramesh et al. '539 discloses a memory (storage medium) and method of obtaining a barrier layer from a conductive material (metallic underlayer) with ferroelectric memory cells (Col. 9, Line 14-23) see figure 8. Additionally, Ramesh et al. '539 discloses a total resistance of the barrier decreases with the barrier thickness and with the area of the barrier as it relates to desired switching time. But, does not disclose charge migration rate of the ferroelectric data layer. Claim 1 seems to be identical, except that the prior art is silent as to the inherent characteristics.

Ramesh refers to materials that can be made electrically leaky depending on the thickness of the material in bulk (Col. 10, Line 63-67), which would be similar to applicants charge migration rate. These properties are inherent in physical properties including charge migration because the applicants and the inventors teach virtually

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identical structures with similar materials. The physical properties of similar materials will inherently be similar. The burden of proof is shifted to the applicant to show the prior art properties are different from those claimed. See *In re Fitzgerald*, 619 F. 2d 67, 205 USPQ 594 (CCPA 1980).

As to Claim 2, Ramesh et al. '539 discloses the functional metal oxide layer and any intermediate metal oxide while the top contact layer to the bottom are given a conductive pathway (Col. 9, Line 24-49). Table 4 lists materials that can be utilized that would encompass applicants claim (Col. 14, 15, Line 35-68, 1-15 resp.).

As to Claim 3, Ramesh et al. '539 discloses a conductive barrier layer of (La, Sr) TiO₃ (Col. 4, Line 59).

As to Claim 4, 16 & 17, Ramesh et al. '539 discloses the use of doped perovskite (Col. 6, Line 10-36).

As to Claim 6, 9, 18, 19, Ramesh et al. '539 discloses thicknesses less than 3 to 50 nm and would encompass claim (Col. 10, Line 29-43).

As to Claim 7, 20 Ramesh et al. '539 discloses the use of SrRuO₃ results in a conductive oxide that bonds well with substrate (Col. 8, Line 49-64).

As to Claim 8, Ramesh et al. '539 the use of PZT and SBT (Col. 3, Line 45-65).

References not relied upon are cited as art of interest.

Column and line numbers are provided for convenience. However, the entire reference should be considered.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY D. HARRIS whose telephone number is (571)272-6508. The examiner can normally be reached on 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith D. Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Holly Rickman/
Primary Examiner, Art Unit 1794
For Gary Harris

<i>Application Number</i> 	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/697,271	NEWNS, DENNIS M.	
	Examiner	Art Unit	
	GARY D. HARRIS	1794	